

## 80 percent of generator energy wasted, training experiment finds

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Operational forces consume far more energy than they need, Marine officials are learning, and the service may resort to billing individual units for the resources that simply go up in smoke.

Marine Corps expeditionary energy officials are halfway through an experiment designed to improve the Corps' operational energy use by making unit commanders aware of just how much goes to waste.

The early results show massive room for improvement: During a 30-day predeployment training exercise aboard Marine Corps Air Ground Combat Center Twentynine Palms, Calif., in January, usage monitors showed all but one of the Marines' generators running at below 20 percent efficiency, said Col. Jim Caley, director of the Expeditionary Energy Office.

"It means that 80 percent of the power you're generating powers nothing," Caley said. The test also found Marine vehicles idling more than 50 percent of the time, he added.

The premise of the experiment is simple, Caley said. By installing inexpensive \$100 usage monitors on every generator, vehicle and tactical pump, officials can collect information on how and when energy is used, then transmit that data to unit commanders to help them make better decisions.

In the first iteration of the test at Integrated Training Exercise 2-14 in January, the Expeditionary Energy Office installed the monitors and collected the usage data while observing the energy-consuming behaviors of Marines in training. A month later, as another deploying unit conducted ITX 3-14, officials not only monitored usage, but also approached individual Marines to ask how they were using energy or to recommend more efficient alternatives.

For the two next iterations of the exercise, scheduled for August and October, the Expeditionary Energy Office plans to design a reporting system that sends usage information directly to commanders to help inform their tactical choices, Caley said.

While the Marine Corps prides itself for embracing energy efficiency, in keeping with the conservation goals handed down by the Navy Department, Caley said tactical energy waste result from the ignorance or outdated practices of Marines with experience on older equipment.

"Back when I first joined, we had these trucks called 813s, and if you didn't start your trucks about 40 minutes before you were going outside the perimeter, you weren't going anywhere," he said. "The average truck today starts in five to eight seconds, and yet still our senior staff [noncommissioned officers] are running around going, 'Hey, turn on all the trucks, start them running.' And you don't need to do it."

Caley said energy officials are relying on academic literature and past Marine Corps studies, which indicate that if energy users are shown how and when they are consuming resources, it will change their behavior, producing a 15 percent reduction in energy use in the first year, and an additional 10 percent reduction in the second.

He acknowledged that waste is sometimes inevitable in combat - Marines need to leave their trucks running at an IED stop outside the wire, for example - but data would give commanders the ability to discern the difference between necessary energy use and waste.

"[Commanders] can't decide whether it's good or bad ... because no one is telling them, 'Half your idle is done inside the base, inside of the motor pool,' " Caley said. "So, they're not ... doing anything about it because they don't have a number that says, 'Wow, this is what I'm not using wisely.' "

The next phase of the Marine Corps' energy-saving strategy will have more teeth; as Marine Corps Times has reported in the past, Marine officials have cited plans to hold individual units accountable for energy use over an established norm, the way Marine bases now give residents in military housing a fiscal penalty or bonus based on their power use.

"I'm an operational guy; so what [holding units accountable] looks like in garrison, I'm not entirely sure," Caley said. "but I'll bet that looks like a power bill."